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Don Revill
Liverpool Polytechnic

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LEARNING RESOURCES PROVISION AND INTEGRATION IN AN ENGLISH POLYTECHNIC

Don Revill
Liverpool Polytechnic
Liverpool, United Kingdom

INTRODUCTION

In order to meet the anticipated needs of higher education in the 1990's, Liverpool Polytechnic has had to rethink its learning services provision. The co-ordination and eventual integration of the three core services, educational development (covering educational technology and in-service faculty training), Computing and Library, has been debated.[1,2]

PROFILE OF LIVERPOOL POLYTECHNIC

Student numbers in April 1991 were:

Fulltime equivalent students	..	..	..	..	10,300
Total students	..	..	..	..	13,200

Liverpool Polytechnic awards its own degrees (including research degrees) under license from the [British] Council for National Academic Awards. Liverpool Polytechnic is the fourth largest Polytechnic in the U.K. It has 650 academic staff, 1,050 support staff of all kinds and an annual revenue budget of £52,700,000. It occupies 23 buildings, mostly within the central area of Liverpool, but with one campus six miles out. Its "Schools" organization and titles are descriptive of the disciplines covered:

- Art, Media and Design
- Built Environment
- Business, Languages
- Education and Community Studies
- Law, Social Work
- Natural Sciences
- Health Sciences
- Information Science and Technology
- Engineering and Technology Management
- Social Sciences
- School of Nursing and Midwifery

The Library Service is provided via five libraries serving the principal sites.

Bookstock	..	..	..	..	..	550,000
Current periodical titles	..	..	..	..	..	2,500
Library staff	..	..	..	..	..	80 FTE.
"Book" issues	..	..	..	..	..	360,000
Reader visits	..	..	..	..	..	860,000

In house use is four times recorded external use.
Study use only accounts for 35 - 40% of total visits.

THE COMPUTER SERVICES DEPARTMENT (CSD)

The CSD provides mainframe facilities, laboratory and class sets of networked PCs. It offers various common packages, e.g. word processing, spreadsheets, statistical analysis, graphics, Livetex (a bulletin board), "MAP" (Module

Access Points for descriptions of the modules of the Credit Accumulation and Transfer Scheme), electronic mail, and JANET (Joint Academic Network).

The CSD also offers a Polytechnic Certificate of Professional Development in Computing Applications (mainly to academic and administrative staff of the Polytechnic). However the "Schools" also provide some facilities themselves - particularly in specialist fields, e.g. CAD/CAM.

Most Schools see the advantages of networking their facilities and this has been encouraged by central "direction". The Polytechnic is working towards the "electronic/wired campus". Some senior managers, unfortunately, are not yet included in the network.

Administrative computing is a separate function (on a VAX 6310) under the Management Information Unit, but is in close contact with Computing Services while its files are accessible to Polytechnic faculty and managers under certain conditions as safeguards. The Computing Services Department provide the repair and maintenance service.

EDUCATIONAL DEVELOPMENT SERVICES

Alongside computer and library services, Educational Development Services exists to provide support for teaching and learning activities throughout the Polytechnic. It offers staff development in teaching, an educational technology support service, and guidance on educational innovation. It serves students only indirectly by helping staff to maintain a high level of quality in the delivery of their courses but advice can be provided to students on the preparation of materials for visual presentations of all kinds. The support service currently operates on the majority of the sites in the Polytechnic.

The three services combined represent, for the UK, a fairly powerful resource:

Staff

Computing	..	..	..	..	..	..	..	46
Educational Development	..	..	..	..	..	..	..	12
Library	..	..	..	..	..	..	..	80
								138

Budget (excluding staff) 1990/91

						Revenue £s	Capital £s
Computing	..	..	..	..	..	375,000	1,300,000
Educational Development	..	..	..	..	..	28,000	135,000
Library	..	..	..	..	..	630,000	240,000
						1,033,000	1,675,000

GROWTH/STRATEGIC PLAN

The Polytechnic's strategic plan aims at growth to 15,000 - 16,000 FTEs by 1993/94, meaning that the staff to student ratio will have to rise from 1:15 to 1:20. The problem is how to achieve and sustain this growth. The greater development of "Open Learning" is seen as providing an answer - to produce self-instructional packages and programs accessible via any terminal or networked PC.

A crude analysis illustrates the size of the task. Given 500 academic staff at a ratio of 1:15 FTEs with between 12 and 15 "class contact hours" per faculty member per week, over 30 weeks in the year, gives 180,000 - 225,000 learning units delivered per annum. To move to a ratio of 1:20 FTEs requires an additional third, say 60,000 - 75,000 "learning units".

These can be achieved by the following means in combination:

Development of new methods, materials, media - primarily delivered over the campus network

Adoption and purchase of materials from:

- The Open University
- The Open Polytechnic (just beginning)
- Other producers/publishers

More active use of the Copyright Licensing Agency Agreement. More intensive use of traditional materials - books, audio/visual, etc.

The development of tailored "courseware" which might be given to students as part of course material or loaned to students, and/or sold to students.

Librarians' roles would include discovering the availability of suitable material and acquiring it. The problem arises yet again, as it did over AV materials, of the coordination of the bibliography of this material. This represents a vast task which is seen as requiring the coordinated involvement of all learning services.

There is a need to restructure services to meet the new situation. As part of the required response budgets have been devolved to the Schools and major service areas. In the UK new structures have arisen as a response to "incorporation" - the independence of Polytechnics from local education authorities (since 1st April 1989) under the Education Reform Act of 1988. There is a feeling that learning resources should be united to present new forms of delivery. It is fairly natural for library and computing people to come together as they share a common concern for, and faith in, "information" - its uses and benefits. They agree the inevitability of electronic developments as an answer to the future requirements of higher education. New structures are required for reporting and budgeting. The span of control of senior people, trying to manage larger and more complex institutions, needs to be reduced.[3] There are hopes of economies of scale, or at least survival within existing staff numbers in the face of rising student numbers and greater demand. There is a danger that actuality may be different - each service adapting slowly and continuing much as before.

There is a recognition of the convergence of technologies. Libraries are becoming more involved in electronic mail, JANET and integrated library systems. The Library Service now offers 15 CD-ROM based services and is implementing the Dynix System. The convergence of technologies leads naturally to the convergence of services using those technologies. In Liverpool's case I would like to think that a paper I wrote also had influence on convergence.[4] If it did it was probably more in the nature of sowing a seed.

STRUCTURAL MODELS

In Liverpool Polytechnic the establishment of a Learning Resources Committee in 1987 replacing the hitherto separate Library and Computer Committees was an early precursor of the integration of the services. On the teaching side at that time there were 30 departments grouped into seven faculties. A proposal to place the Library and Computer Services under Student Services was opposed in 1987 by both services. Student Services was seen as providing for the physical needs of the student (housing, money, welfare advice, job placement, recreational involvement) whereas the two learning services saw themselves providing for the information requirements of students. The argument was also partly about whether the "welfare" side of the combined service would

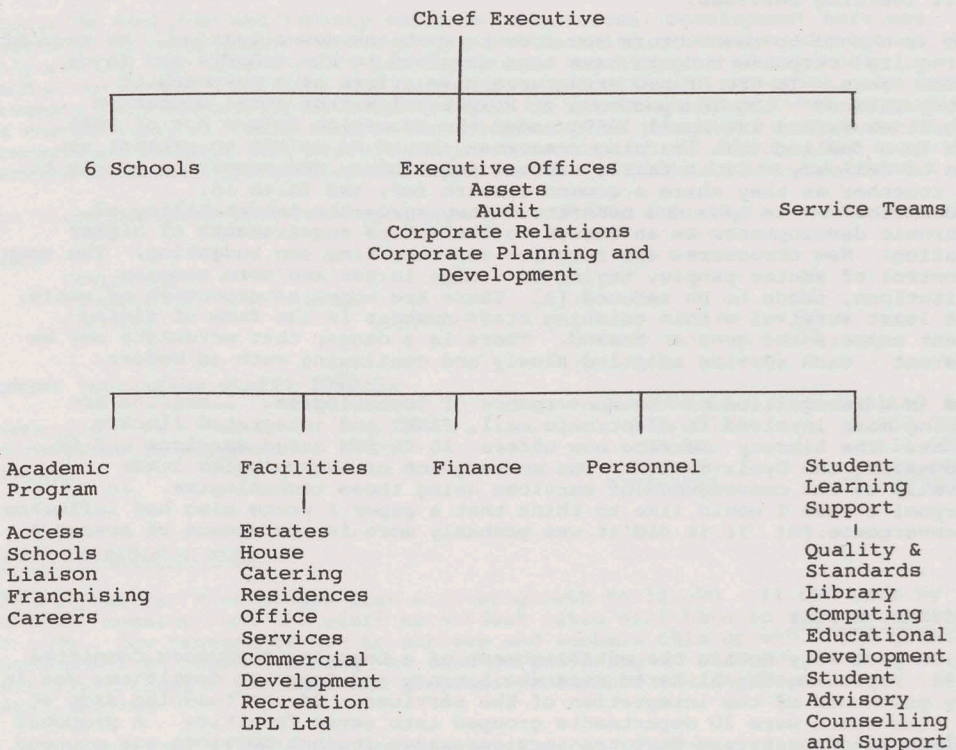
dominate. Ivan Sidgreaves advocates this grouping in the interests of "one-stop shopping". We were to return to it.[5]

A reorganization of the faculty structure took place in 1988. The new structure created 10 Schools.

Responsibility for the Schools was divided between the two Deputy Rectors. The Library Service was happy to be under the 'academic' side, while Computing was pleased, being a heavy consumer of capital funds, to be closer to the financial side. But this structure did not survive long. In 1989 the structure was further modified.

Currently there are further proposals to regroup. Learning Services, it is proposed, are now to come under the umbrella of "Quality and Standards" which is headed by an Assistant Rector. The student services are also to join this group but apparently not in the superordinate position of the earlier proposal.

REORGANIZATION PROPOSED 1991



AIMS OF LEARNING SERVICES

The aims are simply stated:

- (a) to provide computing, library and educational support for learning and teaching activities;
- (b) to raise awareness of new developments;
- (c) to provide support for innovations in programme development and delivery.

Each service has more tangible, specific objectives. The Library Service also operates a management by objectives (MbO) system for shorter term goals. The general objective is to enhance access to information resources and to enable schools to better manipulate information. It could be suggested that a third object, in the future, will be to assist in assessing/evaluating information.

THE DIFFERENT PERSPECTIVES AND PHILOSOPHIES OF LIBRARIES AND COMPUTING SERVICES

There are very evident service "philosophies". Libraries are service orientated. They stress free access, focused on students and staff. They acquire externally generated, published, information. Computing is "machine", product and subject specific Recharging policies and practices [6] are common.

It can sometimes appear that librarians exhibit two reactions to automation - retreat (in fear) and attack (which may appear arrogant). Brian Enright quotes what might be regarded as an example of the latter:

"There is a reassuring caveat concerning the implications of 'convergence' of university academic services, that it should never be forgotten that 'computing centers exist because of automation, but libraries do not; their purpose is broader and their aims are more ambitious the intellectual development of their users in the broadest sense.'[7]

However both have a common concern for information, its discovery, recording, retrieval and dissemination regardless of original format. Both services have in common the problem of ability levels of their users, which are much more apparent in computing. The system won't start/work for you if you do not know what you are doing. Incompetence tends to be hidden in the library case. Users may get some information to meet their needs after long and inefficient searching. Courses on computing tend to take precedence and priority over library - based courses in information handling. One hope for the latter is to join forces with computing.

They are now both far more aware of copyright problems although, for computing, this tends to encompass licensing arrangements rather than the potential copyright chaos which could result from indiscriminate "manipulation" of documents producing new forms from which the original source citation has long since been "detached". Computer services are also closer to student records, internal management information, finance and personnel records. These are principally internally generated data. Libraries deal largely in externally generated information but may also deal in internal records, such as paper based committee, agendas, minutes, and internal reports.

It makes sense to treat all the above as one information resource. The arguments are not new. Veaner argued for greater symbiosis in 1974 [8], Bebbington and Cronin too point out the differences between the two cultures, seeing the library service as more "woolly" and intangible.[9] Libraries tend to be hierarchical (we have three grades of staff with little interchangeability), computing sections are less so.

As Kevin Walsh, Director of Computer Services, remarked "Computer people think in terms of networks and communications. They like to draw complicated diagrams so as to be able to say look how clever we are, but the network should be invisible to the user. No one worries about how the electricity gets to the plug on the wall". Librarians think in terms of services to users, what could be made available, things we are able to say over the network.

Simply stated it could be said that computer services provide the means, routes, channels, and document manipulation - editing, merging, calculating, deleting. Computer services provide the technical support to keep the channels open - leading to the wired campus giving access from any terminal. Libraries provide the messages, the content, "something to say", and user orientation.

There is much to gain from uniting the two service philosophies.

PROBLEMS: IDEAL TYPES

All this has to operate in an highly volatile higher education environment. Not least among the problems is the question of the style/type of education to be provided. One can suggest that the approaches to higher education could be divided into two "ideal types" - representing opposing ends of a spectrum. The prescribed course versus the information rich environment.

The first type stresses a particular set of learning objectives, prescribed subject content, probably based on a textbook, well communicated and thoroughly taught, understanding being tested stage by stage. Only when the criterion is achieved is the student allowed to proceed to the next level. Arguments against this type of education would probably include the words "restrictive", "unimaginative", "stresses limited achievements". Arguments for would be likely to include the words "thorough", "realistic", and probably "cheap", "simple", "purposive".

At the other end of the spectrum is an emphasis on educational process in an information rich environment. There is an argument in higher education that terminal, behavioral, objectives are inappropriate, that the journey is more important than the ends. Arguments for this style of education would include "choice", "opportunity", "exploratory", "imaginative", "develop the individual".

Perhaps it is too simplistic to suggest that whole institutions are characterized by one style. The dangers of reification must be avoided! It could be, however, that certain courses, years, or certain lecturers, or particular subjects tend more to one extreme than the other. The institution is the sum of all its members. These members change. Course documentation does not necessarily describe what happens on the day in the classroom at the hands of every individual. Each lecturer, having a degree of autonomy in the classroom, has freedom to adopt any approach. An infinite variety is theoretically possible, influenced or not by research findings or knowledge of appropriateness for each individual.

It may be that the "publication" of courseware offered on distance-learning courses (Open University style) by academic institutions being open to peer review, will tend towards the provision of standardized courses. Healey, comparing American and British practice, points out that "there is enormously strong pressure for staff to produce standardized courses, purged of idiosyncrasy. The marketing strategy of the large academic book publishers reinforces this pressure, providing staff with free teaching packs that include a textbook setting out self-contained, one-term courses, as well as lecture notes, overhead projector slides, worksheets, revision guidance and student tests. The students themselves encourage staff to adopt these mass

produced, "off the peg", courses since it means they have to buy only one textbook"[10]

The "information rich" environment probably appeals to most of us but is it cost effective? Libraries, traditionally offering an open house, see their services as being generally available to anyone wishing to make use of them. The notion of specifically tailored services is not paramount. Even selective dissemination of information (SDI), the closest we tend to get to sharply focussing our services, has had a checkered history. Our computing colleagues may offer us guidance in this respect, although I suspect they, themselves, would prefer an information rich environment.

Arms and Michalak state "that the way to discover the long-term benefits of computing is to provide faculty and students with vast amounts of computing and to observe what use they make of it."[11] This statement is certainly at the information rich end of the spectrum.

The feeling is "make it available, generously, and see what people make of it" but also expect more learning, deeper understanding, students learning to learn, from it. "We need to know more about the instructional process to know whether technology improves the teaching and the educational process."[12] This philosophy is attractive but also potentially very expensive. The two services could run the risk of both being labelled "bottomless pits" especially as supply seems to create demand in both services. Learning services need guidance and advice on which style to serve or which styles suit particular learning environments. We could then better orientate our services. If specifically debated and decisions made, institutions would then realize the implications of their choices.

ADVANTAGES OF CONVERGENCE

The Library can advise on technical standards for open learning/courseware units from title pages, through SGML, to allocation of keywords as descriptors, and packaging of print and a/v based material. Similarly Computer Services can advise on, and set standards for, CAL and similar programs.[13,14,15]

There can be coherent policies and practices on the purchase of materials. Demarcations on software provision can be resolved. The library's bookfund can be more actively utilized. The Library's systems can be used to inform everyone of what is available - and, in the future, extending to information on the subject expertise of members of faculty - the human resources. Computing people's expertise in communications can help weld voice, data and video channels into a powerful learning and management resource. New services will arise, e.g. "clinics" where particular educational problems could be discussed with the converged services experts.

Joint training of users may be beneficial. Faculty are probably more skilled in library use than in computing use; the opposite probably obtains for students because they are taught "information technology". The more familiar resource - the library - may not be seen as requiring specific instruction to make effective use of it. There may be advantages in uniting the two needs under a general concept of information handling.

Linking libraries with computing will acclimatize administration to the idea that libraries include computing and the notion that hardware obsolesces and has to be replaced - which they accept in Computing but will have to get used to for libraries.

A single central service may have a more powerful voice than the constituent parts individually. It will have to lead the institution in some respects.

From a single service its priorities, plans, presentations, budgets will encompass the whole spectrum of learning possibilities.

A problem faced by many institutions' computing services is that of moving away from "managing and supporting central mainframe facilities to underpinning varied network of computing facilities across the campus ..." [16] Where library services have been delivered through several service points, on different sites, this experience might help our computing colleagues. Where both were delivered from a single service point then, at least, they share the same problems!

Computer Services are also at increasing risk from competitors. Academic departments may initiate, and manage, their own facilities. Individuals will, increasingly, provide their own hardware and link to external agencies.

Similarly libraries face challenges from the global market for information, the "new scholarship", commercial information brokers, the costs of acquisition and maintaining collections rising and the proportion of current publishing one can acquire declining.

Both services need to constantly define and redefine their roles. If we do not cooperate the consequences will be marginalization and the bypassing of our services.

In all this people and personalities are crucial. Bebbington and Cronin argue that there needs to be a "critical mass" of people committed to the concept and driven by a "production champion" at a high level. [17] According to Brindley a relationship is needed based on "mutual respect for what are complementary skills" [18]

Joint recruitment of staff is another problem area. The "overlord" or "primus inter pares" of the converged service would obviously be in the best position to compare applicants.

Library schools now offer much greater computing content. Newly qualified librarians are now better equipped to deal with automation. Yet it will be many years before the roles converge. We are not yet one staff indistinguishable one from the other.

CONCLUSION

Generally speaking the system has worked well. Bringing the three heads of service together has been a success but this would probably have been the result irrespective of the formal structure adopted. Personalities, and viewpoints, were compatible.

Personal relationships were important in making the merger possible. Joint events have encouraged staff to see themselves as part of a single service but old allegiances persist. When physically integrated in the new buildings we expect to see greater cohesion and eventual interchangeability.

The physical merger of the services in one building has not yet been achieved. A newly built building was to have been designed to provide access to both library and computing facilities via a common entrance. For various reasons this was not achieved. Two learning resource centers, combining library and computing, are now in advanced states of planning. In the meantime the second floor of the Engineering and Science Library is being extended to house 120 terminals. An information center will face the library exit/entrance counter. This will provide our first experience of physical integration.

What weaknesses there are lie more in the consultative structure. Each School has a Learning Resources Committee (LRC) hence some eleven LRC are associated with, in essence, five site libraries and computing services. Faculty still tend to be interested in particular parts of the services, the more obvious division being libraries/computing, so two thirds of each committee might show little interest in each agenda item. Attendance too has been patchy. A coherent policy direction for each library is difficult to achieve (one library has four LRCs "controlling it". The temptation to "divide and rule" is present).

Some schools wish to reduce their committee commitments and have proposed merging their learning resources committees with staff development and research - thus weakening the committees' focus.

Systems are still changing and hence adapting. No doubt, like the technology itself the human and managerial system will, itself, continue to evolve.

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